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The SAFE-30 Heads to NASA

SAFE —Safe Affordable Fission Engine — the first demonstration of a U.S. built space fission system in over 30 years.

Reliable, long-life, low-cost heat pipes can enable safe, affordable space fission power and propulsion systems. Advanced versions of these systems can in turn allow rapid access to any point in the solar system. Twelve stainless steel sodium heat pipe modules were built and tested at Los Alamos for use in a non-nuclear thermohydraulic simulation of the SAFE-30 reactor. SAFE-30 is a near-term, low-cost space fission system demonstration. The heat pipes were designed to remove thermal power from the SAFE-30 core, and transfer this power to an electrical power conversion system. These heat pipe modules were delivered to NASA Marshall Space Flight Center in August 2000 and were assembled and tested in a prototypical configuration during September and October 2000.

A prototype of a SAFE-30 sodium-stainless steel heat pipe module went under testing in August 1999. The heat pipe is shown (at left) in the horizontal orientation with a 14-inch long induction coil, operating at 985 K. The heat pipe was isothermal (within 1°C) over its entire surface. The condenser surface was lightly oxidized from processing (total hemispherical emittance ~0.4). Based on this estimated emittance, the total condenser throughput at the operating temperature was 1400 W. To reduce fabrication cost yet retain high performance, this heat pipe was built with a composite-annular capillary structure. This robust design eliminates the need for hot acid etching – a labor-intensive process that has been customarily used inside previous Los Alamos-built high-performance-reactor heat pipes.

The twelve stainless steel sodium heat pipes assembled in a prototype configuration and under testing.

Safety for you . . .

WATCH YOUR EARS!

Hearing loss can result from repeated exposure to lower noise levels such as power tools, as well as single events like an explosion.

A noise is too loud if:

- You have to raise your voice to be heard.
- You can't hear someone less than two feet away.
- After leaving a noisy area speech seems muffled or dull or you have ringing or pain in your ears.

Protect your precious sense of hearing. If you work in a noisy environment wear earplugs or earmuffs and have your your hearing tested regularly by an audiologist.

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Cycle Oregon

Terry Phillips and his daughter, Allie, take a scenic tour of Oregon.

Terry and his daughter, Allie, ready to go at the starting line in Paisley, Oregon.

Terry Phillips has been a serious cyclist for over 30 years. He started cycling by commuting daily from his home to graduate school and has been on a bike ever since. Today, he continues to commute to work, which is about a 15-mile round trip. In 1976, when the Bike Centennial took place in honor of the Bicentennial Celebration, Terry became intrigued with the idea of a transcontinental bike ride; however, an opportunity never presented itself until recently.

A map of the Cycle Oregon 2000 route and inserts of some of the beautiful scenery along the way.

Each year, Terry tries to spend time with each of his children. He and his daughter Allison, who lives in Portland, Oregon, considered a ski trip to Mt. Hood, but their schedules wouldn't permit it, so she suggested that they do "Cycle Oregon" together. With his long-time wish of doing an extended bike ride, Terry enthusiastically embraced her idea.

Cycle Oregon is an annual 7-day bicycle tour that provides participants with an opportunity to experience and explore rural Oregon. Each September, nearly 2000 cyclists travel a route, which changes each year, on paved roads that connect the people and places that make Oregon a special place.

The Cycle Oregon 2000 tour, a nominal 475+ miles, provided a route with many choices and challenges. The tour started in Paisley and ended 7 days later in Hood River. In between, the tour featured a range of geographical highlights, including Fort Rock, Elk Lake, the Cascade Mountains, the lava fields by Dee Wright Observatory, Smith Rock, and the Columbia River Gorge.

To train for the tour, Terry continued his daily bike rides to work and added longer rides in June and July. As September approached, he rode even more. Almost all of Terry's training rides were around the loops defined by Rt. 4, Pajaritio Rd, and west and east Jemez Rd. His longest training rides were 66 miles.

For Terry, the most challenging part of the Cycle Oregon tour was the ride into Dufur; to get there, the cyclists had to climb a very long (~ 7 miles), steep hill in a fierce headwind. His favorite part of the trip was the portion between LaPine and Bend, which provided spectacular views of the Cascades and Oregon scenery and had a "great hill" with a wonderful downhill of nearly 13 miles.

DeChutes River waterfall on the way to Dufur, Oregon.

Ft. Rock Cave, between Silver Lake and La Pine.

Impressed though he was by the beautiful Oregon landscape, Terry, as an engineer, was even more enthralled by the logistics of the Cycle Oregon tour itself. Cycle Oregon is a fully supported tour, including all meals, food, and beverages on the course; hot showers (brought to the camps in semi trucks); baggage transport, 24-hour medical support; bike repair on course and in camp; SAG vans (SAG vans are for riders

"We Made It!" Terry and Allie at the finish line of the Cycle Oregon route in Hood River, Oregon.

who are lagging behind and just can't make it); daily entertainment; a daily newspaper; non-cycling activities; and more.

Founded in 1988, the Cycle Oregon 2000 tour was the 13th annual ride. Cycle Oregon's mission is to produce a world-class bicycling tour, showcase rural Oregon communities, and promote cycling causes. A portion of the annual revenues is distributed through a grant fund to benefit bicycle-related projects and rural Oregon communities.

Bicycling

An Excellent Form of Exercise

Cycling can be an aerobic exercise. To receive cardiovascular benefits, you must maintain a consistent effort, keeping your heart rate at a training level for 30-60 minutes — the same as for any aerobic exercise.

Even cycling at a leisurely pace can burn the calories. For example, cycling at a speed of 9.4 mph, considered a recreational speed, burns about 480 calories per hour for a 176-lb man. This compares to 380 calories per hour while walking at 4.2 mph, or 920 calories per hour while running at 9.0 mph.

Recycling Facts

With the New Year underway it's a perfect time to recommit ourselves to recycling, conserving energy, and reducing waste at the office as well as at home. Following are facts and other tidbits of information about recycling:

- Recycling paper uses 60% less energy than manufacturing paper from virgin timber.
- Recycling a glass jar saves enough energy to light a bulb for four hours.
- Recycling cuts down on landfill.
- Every year each person creates 360 lbs of food and yard waste. Yard waste is 20% of the solid waste stream. Composting is an effective way to decrease the amount of food and yard waste in landfills and benefit the soil in yards and gardens.
- In America, 1,500 aluminum cans are recycled every second.
- American's throw away enough aluminum every three months to rebuild our entire commercial air fleet.
- It takes several thousand years for a computer monitor to decompose in a landfill. For every computer that is recycled there are four that end up in a landfill.
- For every ton of new glass produced we get 27.8 pounds of air pollution. Recycling glass reduces that pollution by 14-20%.
- By recycling 1 ton of paper you save:
  - 17 trees
  - 6953 gallons of water
  - 463 gallons of oil
  - 587 pounds of air pollution
  - 3.06 cubic yards of landfill space
  - 4077 kilowatt hours of energy
- An estimated 7.4 million tons of textiles were generated in 1995. Textiles made up nearly 3.6 percent of the MSW stream.
- Levi Strauss & Co. has a unique program to recycle their scraps. It started with the Levi's jeans factory in Albuquerque, NM. The Levi company sweeps up its scraps and ships them to a paper plant, which turns them into attractive 100% recycled cotton products. Now that's recycling!

A Gift from Our Home to Yours

I don't know how often over the recent holidays I reached for my cookbooks, looking for those time-honored family recipes that make the holidays special. But this year, each time I reached for those recipes I was reminded that the families who lost their homes in the Cerro Grande Fire had also lost their cherished family recipes. It has been easy to think of the bigger items that the families have lost — beds, clothing, furniture, etc., but the everyday items, the things we take for granted, the little things are not so easily remembered. Many of those recipes lost in the fire can never be replaced.

In an effort to give something back to the victims of the Cerro Grande Fire, ESA Division is putting together a cookbook of recipes gathered from its members. What better way to show the fire victims that they are still remembered than to give them something personal from the warmth of our very own kitchens.

To participate, please send up to 5 of your (or your spouse's) favorite recipes to lcl@lanl.gov. The recipes can be for anything from appetizers to baked goods to main dishes to soups to sauces. They do not have to be holiday dishes. Whatever you would like to provide will be most welcome.

Keep in mind that if there is an overwhelming response, some recipes may not make it into the cookbook due to space limitations.

Our hope is to have the cookbook done and printed before the anniversary of the Cerro Grande Fire.

January 2001

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

February 2001

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28			

Jan 1	New Year's Day Holiday	
Jan 15	Martin Luther King Holiday	
Feb 6	Group Meeting at MSL Auditorium	
Feb 19	President's Day Holiday	

Security Begins with You

TOP 10 COMMON SECURITY ERRORS RESULTING IN SECURITY INCIDENTS

1. Did not obtain a classification review.
2. Left a security container (safe, vault, and vault-like room) unsecured and unattended.
3. Created a classified document on an unclassified computer.
4. E-mailed classified information over an unclassified local area network.
5. Did not control access and need-to-know to classified information.
6. Did not mark classified drafts and working papers properly.
7. Did not account for classified information properly.
8. Did not properly verify a classified mailing address.
9. Introduced prohibited articles into a security area.
10. Did not report (possible) security incidents.

Los Alamos NATIONAL LABORATORY

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